

*Kul'CHITSKIY, L.A.*S/056/63/044/004/007/044
B102/B186AUTHORS: Kul'chitskiy, L. A., Volkov, Yu. M.TITLE: Photodisintegration of Li^7 PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44,
no. 4, 1963, 1153 - 1159

TEXT: The energy spectra and angular distributions of the protons and tritons emitted on photodisintegration of Li^7 were measured by a method similar to that described in ZhETF, 42, 108, 1962. A Li^7 target of

8 mg/cm² was arranged in a vacuum chamber with two equal telescope counters; argon-filled proportional counters served as input counters for the telescopes. The energy resolution of the telescopes was improved by using fast integral discriminators. The proton energy spectrum $E_{\gamma\text{max}} = 30$ Mev was obtained by superposing the spectra obtained for the angles 54, 72, 90, 108, and 126°; peaks were observed at 4.60, 5.20, 5.85, 6.75, 7.75, 8.60, and 10.20 Mev. When superposing the spectra taken at $E_{\gamma\text{max}} = 20, 25, \text{ and } 30$ Mev (90°), the low-energy peaks appear somewhat shifted. The triton energy

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S/056/63/044/004/007/044
B102/B166Photodisintegration of Li^7

spectrum ($E_{\gamma\text{max}} = 30 \text{ Mev}$) has peaks at 14.1, 16.2, 18.0, 19.6, 21.5, 23.5, and 25.3 Mev. The angular distributions of both photoprotons and phototritons can be approximated by $a+b\sin^2\theta(1+\gamma\cos\theta)^2$; a/b and γ are determined by the method of the least squares. The differential p, d, and t production cross sections are given in Table 3 ($\text{cm}^2/\text{steradian}\cdot\text{Mev}\cdot\text{Q}$). As calculations based on the theory of gamma resonance absorption show, the reaction $\text{Li}^7(\gamma, t)\text{He}^4$ occurs most probably as a result of compound nucleus formation. The peaks corresponding to the 19.6 and 25.3 Mev excited levels were observed for the first time. The majority of the protons observed correspond to transitions to excited states of the He^6 nucleus. There are 5 figures and 5 tables.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR)

SUBMITTED: November 10, 1962

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Photodisintegration of Li^7

S/056/63/044/004/007/044
B102/B186

Table 3

		$10^{24} \frac{d\sigma}{d\Omega dE dQ} \cdot \frac{\text{cm}^2}{\text{cm}^2 \cdot \text{MeV} \cdot \text{Q}}$	
		$E_{\gamma \text{ max}} = 20 \text{ MeV}$	$E_{\gamma \text{ max}} = 25 \text{ MeV}$
		$E_{\gamma \text{ max}} = 30 \text{ MeV}$	
p		2.7 ± 0.2	8.6 ± 0.4
d		0.11 ± 0.03	0.40 ± 0.12
t		1.36 ± 0.24	1.36 ± 0.12

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ACCESSION NR: AP4031183

.. S/0056/64/046/004/1488/1490

AUTHOR: Danisov, V. P.; Kulikov, A. V.; Kul'chitskiy, L. A.

TITLE: Cross section of the reaction C-13 (Gamma, p) B-12

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 4, 1964, 1488-1490

TOPIC TAGS: gamma proton reaction, integral cross section, differential cross section, emission spectrum, carbon, boron

ABSTRACT: The yield of the reaction $C^{13}(\gamma, p)B^{12}$ was determined from the γ activity of the residual nucleus B^{12} ; this activity was registered in the intervals between pulses of the synchrotron γ -quantum beam. The target and detector used were stilbene crystals. The integral and differential cross sections were obtained by processing the yield curve by the Penfold and Leiss method. The differential cross section curve differs greatly from the similar curve obtained by B. C. Cook (Phys. Rev. v. 106, 300, 1957). However, a great similarity exists between the present result and the differential cross section for the reaction $C^{12}(\gamma, p)B^{11}$, obtained from the spectrum of the protons from the disintegration of C^{12} by Dodge and Barber (Phys. Rev. v. 127, 1746, 1982). The peaks of the (γ, p) reaction on C^{13} occur at approximately the same energies as those of the C^{12} , but

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ACCESSION NR: AP4031183

with a shift of approximately 1 MeV towards the higher energies. A comparison of the results with the theoretical calculations shows that the values of the energies of the main transitions are in good agreement with the peak energies obtained in the present experiment. Orig. art. has: 2 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR
(Physicotechnical Institute Academy of Sciences SSSR)

SUBMITTED: 23Oct63

DATE ACQ: 07May64

ENCL: 02

SUB CODE: NP

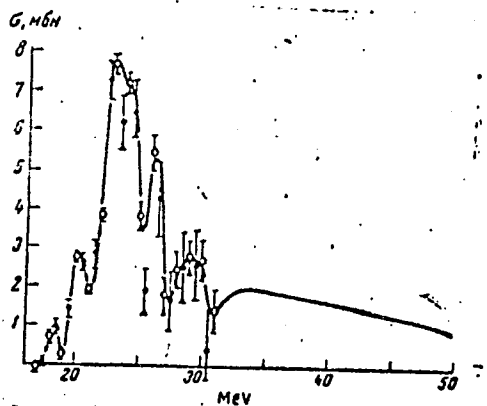
NR REF SOV: 001

OTHER: 003

Card 2/4

ACCESSION NR: AP4031183

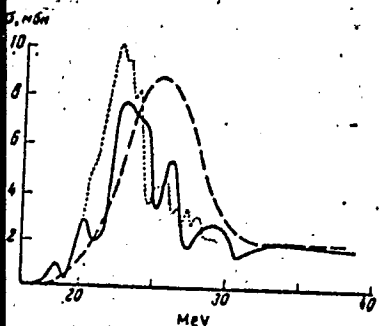
ENCLOSURE: 01



Card 3/4

ACCESSION NR: AP4/031183

ENCLOSURE: 02



Card 4/4

DENISOV, V.P.; KUL'CHITSKIY, L.A.

Study on the $O^{16}(\gamma, p)N^{15}$ reaction. IAd. fiz. 2 no.1:70-81 J1
'65. (MIRA 18:8)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR.

L 4378-66 EWT(m)/EWA(h)

ACCESSION NR: AP5020256

UR/0367/65/002/001/0070/0081

AUTHORS: Denisov, V. P.; Kul'chitskiy, L. A.

TITLE: Investigation of the reaction $O^{16}(\gamma, p)N^{15}$

SOURCE: Yadernaya fizika, v. 2, no. 1, 1965, 70-81

TOPIC TAGS: oxygen, bremsstrahlung, proton interaction, gamma interaction, excited state

ABSTRACT: Photoproton spectra of O^{16} were measured in the proton-energy region 3.4 -- 12 MeV by means of telescopes consisting of proportional counters and scintillation counters. The measurements were made for 14 values of the maximum bremsstrahlung energy from 21.3 to 43.7 MeV. Excitation functions for the reaction $O^{16}(\gamma, p)N^{15}$ for the transitions to the ground state, to the doublet positive-parity state, and to the third-excited state of N^{15} were obtained from an analysis of the proton yield curves in various regions of the spectrum, using the bremsstrahlung-spectrum isochromats. The relative

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L 4378-66

ACCESSION NR: AP5020256

2

intensities of the transition to these states are 45, 25, and 30 per cent for the transitions from the 22.4-MeV dipole state of

O^{16} , and 42, 28, and 30 per cent from the 24.4 MeV state. The total integrated (γ, p) cross section is 83 ± 8 mb-MeV in the range 17 -- 40 MeV. The cross sections for the various excited states of the

O^{16} nucleus were determined and their positions found to be in good agreement with energies obtained in other experiments. The results are compared with theoretical calculations and with other experimental

data on $O^{16}(\gamma, p)$ reactions. A detailed description of the measurement technique can be found in another paper by the authors, with Yu. M. Volkov (PTE no. 3, 67, 1965). 'The authors thank the synchrotron crew, headed by Chief Engineer V. P. Fominenko, for making possible the success of this work.' Orig. art. has: 4 figures and 4 tables.

ASSOCIATION: Fiziko-tekhnicheskii Institut Im. A. F. Ioffe, AN SSSR
(Physicotechnical Institut AN SSSR)

SUBMITTED: 06Nov64

ENCL: 00

SUB CODE: NP

NR REF SOV: 004

OTHER: 018

Card

2/2 *mlr*

I. 07920-67 EWT(m)/EWP(e)/ETI IJP(c) JD
ACC NR: AF6030654 SOURCE CODE: UR/0020/66/169/006/1307/1310

AUTHOR: Komar, A. P. (Academician UkrSSR); Denisov, V. P.; Kul'chitskiy, L. A. 44 E

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences SSSR (Fiziko-
tekhnicheskii institut Akademii nauk SSSR)

TITLE: Investigation of the photodisintegration of the nucleus O^{16} 19

SOURCE: AN SSSR. Doklady, v. 169, no. 6, 1966, 1307-1310

TOPIC TAGS: oxygen, nitrogen, integral cross section, transition probability, photo-
nuclear reaction, gamma ray absorption, resonance absorption

ABSTRACT: The authors report results of investigations of the transition probability and different states of the final nucleus N^{15} obtained by photodisintegration of O^{16} , and the integral cross section for total absorption of γ quanta above the region of giant resonance (up to 55 Mev). The research consisted of measuring and analyzing the energy spectra of the photoprotons of the reaction (γ, p) in the energy interval $E_{\gamma max}$ from 21.3 to 55.0 Mev. The protons were registered at 90° relative to the direction of the bremsstrahlung beam, by a telescope consisting of a proportional counter (front) and a scintillation counter with NaI(Tl) crystal (back). Details of the measurement methods are given elsewhere (Priory i tekhn. eksp. no 3, 67, 1965). The results show that the intensity of the transitions to the levels of positive parity (5.28 and 5.30 Mev) of the N^{15} (produced in the reaction $O^{16}(\gamma, p)N^{15}$) are commensurate with the intensities of the transitions to levels of negative parity.

UDC: 539.172.3

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L 07920-67

ACC NR: AP6030654

The integral cross section was 127 Mev-mb up to 57 Mev, 166 Mev-mb up to 35 Mev, and 240 Mev-mb up to 55 Mev. The last two quantities agree well with published data by others. The results show that whereas for heavy and medium nuclei almost the entire integral photo absorption cross section is contained in the region of the giant resonance, for O^{16} more than half of the integral cross section is in the region of higher γ -quantum energies. Orig. art. has: 1 figure, 1 formula, and 1 table.

SUB CODE: 20/ SUBM DATE: 16May66/ ORIG REF: 005/ OTH REF: 017

CANC 2/2

KUL'CHITSKIY, L.I.

Dehydration of the crystal hydrate applied in determining the
gypsum content of soils. Pochvovedenie no.10:101-107 0 '56.

(MLRA 10:1)

1. Nauchno-issledovatel'skiy sektor Gidroporyekta.
(Soils--Analysis) (Gypsum)

KUL'CHITSKIY, L.I.

Determining the absorption capacity of clays by adsorption of
the methylene blue organic dye. Kora vyvstr. no. 3:365-
368 '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii
i inzhenernoy geologii.
(Clay--Analysis)

KUL'CHITSKIY, L.I.

Separation of the finely dispersed fraction from clay for
mineralogical analysis. Razved. i okh. nedr 26 no.9:50-52 S '60.
(MIRA 15:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i
inzhenernoy geologii.

(Clay—Analysis)

KUL'CHITSKIY, L. I., Moscow, and RAYTEURD, Ts. M., Moscow State University

"New experimental data from the study of clay mineral microaggregates"
(Section VIII)

report to be submitted for the Second Conference on Clay Mineralogy and Petrography,
Prague, Czech., 10-17 May 1961.

KUL'CHITSKIY, L.I.

Spectrophotometric study of the adsorption of methylene blue
highly dispersed aluminosilicates. Koll. zhur. 23 no.1:
76-85 Ja-F '61. (MIRA 17:2)

1. Nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy
geologii, laboratoriya fizicheskikh metodov issledovaniya.

RAYTBURD, TS.M.; KUL'CHITSKIY, L.I.

New experimental data on the study of the microaggregates
of clay minerals. Rent. min. syr. no.2:75-80 '62.

(MIRA 16:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidro-
geologii i inzhenernoy geologii Ministerstva geologii i
okhrany neдр SSSR.

KUL'CHITSKIY, L. I.

Analyzing errors in the determination of the specific gravity
of saline soils. Vop. gidrogeol. i inzh. geol. no.20:164-178
'62. (MIRA 16:4)

(Saline and alkali soils—Density)

KULCHITSKIY, L. I.

"Studies on the crystal chemistry of the surface of clay minerals and the clay-water-ions system by spectrophotometric analysis."

Report submitted for the International Clay Conference, Stockholm, Sweden, 12-16 Aug 63.

KUL'CHITSKIY, L.I.

Determining the volumetric clay cations with their preliminary displacement by methylene blue in an aqueous solution. Biul. nauch.-tekhn.inform VIMS no.1:84-86 '63.

(MIRA 18:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii.

KUL'SHITSKIY, L.I.

Studying the crystal chemistry of highly dispersed aluminum
silicates. Trudy VSEGINGEO no.9:253-266 '64. (MIRA 17:10)

KOROLEV, V.A.; KUL'CHITSKIY, L.S.; ZHERNOVOY, A.I.

Angular α - γ correlation of ThC" (Tl_{8}^{208}). Izv. AN SSSR, Ser. fiz. 20
no. 12: 1451-1454 D '56. (MLRA 10:3)

1. Leningradskiy fiziko-tekhnicheskii institut Akademii nauk SSSR.
(Thorium--Isotopes)

KUL'CHITSKIY, P. A.

36430. Posle-operatsionnoye techeniye ostrogo appenditsita v zapolnen'ye. Sov. vracheb. Sbornik, vyp. 16, 1949, S. 24-26

KUL'CHITSKIY, P. A., POKUS, A. G. I MAKSIMOV, A. A.

S0: Letopis' Zhurnal'nykh Statey, No. 49, 1949

ARTEM'YEV, Yu.N., kand. tekhn. nauk; GAL'PERIN, A.S., kand. tekhn. nauk; TEL'POV, A.S., inzh.; DYADYUSHKO, V.P., inzh.; SELIVANOV, A.I., red.; TEPTLEV, P.M., spets.red.; KUL'CHITSKIY, R.N., spets. red.; ARKHANGEL'SKIY, B.Ye., spets. red.; GINDINA, I.I., red.

[Specifications and instructions on checking for wear of the parts and couplings of T-40 tractors in repair] Tekhnicheskie usloviia i ukazaniia po defektovke detalei i sopriazhenii pri remonte traktorov T-40. Moskva, Biuro tekhn. informatsii GOSNITI, 1964. 169 p. (MIRA 18:5)

1. Perovo. Gosudarstvennyy vsesoyuznyy nauchno-issledovatel'skiy tekhnologicheskii institut remonta i ekspluatatsii mashinno-traktornogo parka. 2. Laboratoriya issledovaniya iznosov traktorov Gosudarstvennogo vsesoyuznogo nauchno-issledovatel'skogo tekhnologicheskogo instituta remonta i ekspluatatsii mashinno-traktornogo parka, Perovo (for Artem'yev, Gal'perin, Dyadyushko). 3. Vladimirskiy traktorny zavod (for Teptlev, Kul'chitskiy). 4. Lipetskiy traktorny zavod (for Arkhangel'skiy).

KUL'CHITSKIY, S. I.

Leather

Measuring the weight and surface of stiff leather., Leg. prom. no. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March, 1952 ~~1955~~, Uncl.

KUL'CHITSKIY, S.I.

Double-side sharpening for knives used in cutting tough leathers.
Leg.prom.15 [i.e.16] no.3:36-40 Mr '56. (MLRA 9:7)

1.Glavnyy inzhener Minskoy obuvney fabriki imeni Tel'mana.
(Leather industry)

KUL CHITUSHKIY, S.I.

KUL CHITUSHKIY, S.I., Engineer.

Shaping shoe uppers. Leg. prom. 1st no. 7:19-21 J1 '57. (MIRA 10:7)
(Shoe industry)

KUL'CHITSKIY, S.I.

Determining the classification methods for hide butts for soles.
Kozh.-obuv.prom. 4 no.6:23-25 Je '62, (MIRA 15:6)
(Leather--Testing)

PLATUNOV, K.M. [deceased]; KUL'CHITSKIY, S.I.

Waste of material caused by the deformation of the cutting
knives. Kozh.-obuv.prom. 4 no.9:29-32 S '62 (MIRA 15:9)
(Shoe machinery)

KUL'CHITSKIY, S. I., inzh.; AFANAS'YEV, A. A., kand. tekhn. nauk, dotsent

Classification of the wastes in cutting and some problems of
the utilization of materials for the manufacture of footwear.
Izv. vys. ucheb. zav.; tekhn. leg. prom. no. 4:87-94 '62.
(MIRA 15:10)

1. Kiyevskiy tekhnologicheskii institut legkoy promyshlennosti.
Rekomendovana kafedroy tekhnologii obuvnogo proizvodstva.

(Shoe manufacture)

KUL'CHITSKIY, S.I., inzh.

Method for evaluating efficiency in the utilization of sole
leather. Izv. vys. ucheb. zav.; tekhn. log. prom. no.2:67-
74 '63. (MIRA 16:10)

1. Kiyevskiy tekhnologicheskii institut legkoy promyshlennosti.
Rekomendovana kafedroy tekhnologii obuvnogo proizvodstva.

KUL'CHITSKIY, S.V. [Kul'chyts'kyi, S.V.], student istoricheskogo
fakul'teta; KOVBASYUK, S.M., nauchnyy rukovoditel', dots.

Construction of the Southern Main Line, 1864. Pratsi Od.un.
Zbir.stud.rob. 149 no.5:29-37 '59. (MIRA 13:4)

1. Odesskiy gosudarstvennyy universitet.
(Railroads)

KUL'CHITSKIY, U. S.

- 663 sprovochnik - karalog trgovogo i tekhnologicheskogo oborudovaniya. izd 2-e, (Dop.) M., Gostorgizdat, 1954. 140 s. s ill. 26 sm. 8,000 ekz. 10r. 80k. Na obl. aut. ne ukazany (54-54942)
1-e izd. Vyshlo pod sagl: Sprovochnik-katalog obsrudouaniya i inventarya predpriyariy trgovuli i obshchesrvennogo piraniya. 658.8.0025 + 640.24. 0025 (085)

SO: Knizhnaya Letopis, Vol 1, 1955

KUL'CHITSKIY, V.; KOVALEN, Yu.

All-purpose swivel head on a support. Sov.foto 18 no.10:62-63
0 '58. (MIRA 11:11)
(Motion-picture cameras)

KUL'CHITSKIY, V., inzh.

Tubular electric heaters. Obshchestv. pit. no. 8:31-34 Ag '60.
(MIRA 14:4)

(Electric cookery)

L 15767-63

EPR/EWP(j)/EPF(c)/EWT(m)/BDS ASD/ESD-3 Ps-4/Fc-4/Pr-4

RM/WW

ACCESSION NR: AP3005858

S/0051/63/015/002/0286/0287

AUTHOR: Voloshin, V. A.; Goryushko, A. G.; ~~Kul'chitskii, V. A.~~

73

TITLE: Spectroscopic investigation of poly(methyl methacrylate) activated by europium benzoylacetate

SOURCE: Optika i spektroskopiya, v. 15, no. 2, 1963, 286-287

TOPIC TAGS: rare earth chelate, rare earth, chelate, europium benzoylacetate, polymer, poly(methyl methacrylate), laser, laser material, absorption spectrum, emission spectrum, europium, benzoylacetone, complex

ABSTRACT: A study has been made of the spectroscopic properties of a rare-earth chelate in a polymer because rare-earth chelates in the crystalline state are not likely to be used in laser systems owing to too high a concentration of both absorption and emission centers. Two percent of europium 1-phenyl-1,3-butanedione complex (I) activating poly(methyl methacrylate) and crystalline I were both used in the experiment. The main results are given in Fig. 1 of the Enclosure. The absorption spectrum at room temperature ($\lambda_{\text{max}} = 308 \text{ m}\mu$, $\epsilon = 1.6 \times 10^4$) is characterized by a wide region of singlet-singlet transition of I. In general, the emission spectra of I are identical in the crystalline

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L 15767-63

ACCESSION NR: AP3005858

state and in the polymer and are characterized by the following data: 1) Emission occurs only from the $5D_0$ level except for the very weak, but sharp, 5336-Å line which appears in crystalline I at 100K and a 60-min exposure and may be due to a component of the $5D_1 \rightarrow 7F_1$ transition. 2) The $5D_0 \rightarrow 7F_0$ transition is very strong, nearly identical in intensity to the $5D_0 \rightarrow 7F_1$ transition. This indicates the low symmetry of the field in which the europium ion is located. 3) The complete removal of degeneracy from the $5D_0 \rightarrow 7F_1$ and $5D_0 \rightarrow 7F_2$ transitions also indicates a low degree of symmetry. 4) The presence of transitions for which ΔJ exceeds 2 indicates that the europium ion is not at the center of symmetry. 5) The most intense lines occur in the $5D_0 \rightarrow 7F_2$ transition. 6) Only four of the seven components of the $5D_0 \rightarrow 7F_2$ transition were observed, which was apparently due to a loss of film sensitivity. These data prove that both the strength and the symmetry of the field in which the europium ion is located are identical in the crystalline state and in the polymer. However, there are certain differences in the spectra of the two samples: 1) In the polymer the half-width of lines is 2 to 3 times as great (10-30 Å versus 3-10 Å). 2) The most intense component (5879 Å) of the $5D_0 \rightarrow 7F_2$ transition in the crystal is the least intense in the polymer. 3) A number of weak lines, 6153, 6218, 6299, and 6328, can evidently be attributed to the superposition of vibration frequency on electron transitions. Orig. art. has: 1 figure.

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L 10154-63

EPF(c)/ENT(m)/BDS--ASD--Pr-4--FM/MAY/WW

ACCESSION NR: AP3000322

S/0048/63/027/005/0690/0692

AUTHOR: Dobrokhotova, V. K.; Kul'chitskiy, V. A.; Naboykin, Yu. V. 61
60

TITLE: Spectra of frozen solutions of two impurities at 77°K [Report, Eleventh
Conference on Luminescence held at Minsk 10-15 Sept. 1962]

SOURCE: Izvestiya AN SSSR. Seriya fizicheskaya, v. 27, no. 5, 1963, 690-692

TOPIC TAGS: luminescence, energy migration, spectrum shifters, dianthryl
ethylene, liquid scintillators

ABSTRACT: The work was devoted to investigation of the luminescence spectra of frozen solutions containing two impurities between which resonance migration of energy may occur. The basic method of investigating the luminescence of organic molecules in frozen solutions is due to E. V. Shpol'skiy and his co-workers (Uspekhi fiz. nauk, 65, 51, 1959; Ibid., 71, 215, 1960) and allows of observing fine structure in the luminescence spectra of organic molecules. In the present experiments one of the impurities was the inert solvent hexane (instead of the usual toluene); the other was di-(9-anthryl)-1,2-ethylene (DAE). The excitation

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L 10154-63
ACCESSION NR: AP3000322

energy donor was naphthalene. The spectra were excited by filtered radiation from a PRK-2 mercury discharge tube and recorded photographically on an ISP-51 spectrograph. A vibrational analysis of the spectrum at 77°K is presented in a table; the shortest wavelength luminescence line was associated with the 0-0 transition. Next maintaining a constant concentration of DAE in the hexane solution there were prepared samples with 0.1, 1 and 10 moles naphthalene per mole of DAE. In the first the luminescence of only DAE was directly excited; in the second the naphthalene was also excited. In the 10 to 1 solution under excitation by the 313 millimicron line the DAE was excited primarily as a result of energy migration. It is inferred that in frozen solutions there are present two types of luminescence centers; these are formed by the same molecules but with different kinds of short-range order. Energy migration should be taken into account in using the Shpol'skiy technique. Orig. art. has 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 12Jun63

ENCL: 00

SUB CODE: PH

NR REF SOV: 003

OTHER: 000

204/97
Card 2/2

KULCHITSKIY, V. A.

ACCESSION NR: AP4017397

S/0185/64/009/002/0192/0195

AUTHOR: Voloshy*n, V. A.; Goryushko, G. G.; Kul'chy*ts'ky*y, V. O.

TITLE: Energy States of Benzoylacetate rare-earth complexes in a polymethylmethacrylate host.

SOURCE: Ukrayins'ky*y fizy*chny*y zhurnal, v. 9, no. 2, 1964, 192-195

TOPIC TAGS: rare-earth chealate, chealate luminescence, organic laser material, luminescence europium benzoylacetate, terbium benzoylacetate, europium chealate, terbium chealate, polymethylmethacrylate chealate host, copolymerization, rare-earth-organic complex

ABSTRACT: Brightly luminescing polycrystalline europium benzoylacetate (EBA) in a polymethylmethacrylate (PMMA) host luminesces just as brightly as without the host. The basic characteristics of the luminescence spectrum are unchanged, and likewise for the absorption spectra. These were studied between 2800 and 3700 Å. Luminescence spectra were taken at room temperature and at liquid nitrogen, hydrogen and helium temperatures with ISP-51 and STE-1 instruments.

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1/42

ACCESSION NR: AP4017397

Absorption spectra were taken at room temperature only on a SF-4 apparatus. Terbium benzoylacetate (TBA), in contrast to EBA, ceases luminescing in a PM host, and its absorption spectrum changes sharply. The comparison is shown in Figures 1 and 2 of Enclosure 01. The conclusion is that EBA dissolves in PM, while TBA copolymerizes. "The authors, in conclusion, consider it their pleasant duty to thank their colleagues at the Institute of Physics of the Ukrainian Academy of Sciences, D. F. Sheka and G. V. Kly*msheviy for their assistance and helpful discussions." Orig. art. has 2 figures

ASSOCIATION: Fyzy*kotekhnichny*y insty-tut, AN URSR, Kharkov
(Physico-Technical Institute, AN URSR)

SUBMITTED: 22Jul63

DATE ACQ: 19Mar64

ENCL: 02

SUB CODE: PH

NO REF SOV: 001

OTHER: 002

Card 2/4 2

...the first of the two ... the second ...

514

— — — — —

1997

مفتی محمد رفیع الرحمن

1993

L 010h3-67 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6019543

(A)

SOURCE CODE: UR/0190/66/008/006/1080/1084

48
39
B

AUTHOR: Korshak, V. V.; Vinogradova, S. V.; Kul'chitskiy, V. I.

ORG: Institute of Organoelemental Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR); Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii Institut)

TITLE: Copolymers of the unsaturated polyarylates containing allyl side chains with vinyl- and allyl-type monomers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 6, 1966, 1080-1084

TOPIC TAGS: copolymer, solid mechanical property, polyaryl plastic, synthetic material, polymer structure

ABSTRACT: Copolymerization of polyarylates based on isophthalic acid and containing allyl side chains with diallylphthalate, diallylterephthalate, diallylisophthalate, 2-allylphenylmethacrylate, allylmethacrylate, methylmethacrylate, ethylglycol dimethacrylate, bis-ethyleneglicolphthate methacrylate, and styrene was studied. The object of the work was to fill the gap in the pertinent literature. The structures of the copolymers were determined by IR-spectroscopy and elementary analysis. Copolymerization was carried out either in sealed ampoules or in open dishes, using either benzoyl peroxides or a mixture of benzoyl peroxide with tertiary butyl peroxide as ini-

UDC: 66.095.26+678.13+678.674+678.74

Card 1/2

L 01013-67

ACC NR: AP6019543

tiators. The weight ratio of polyarylate to monomer was 1:1 and 1:2. In the case of polymerization with allylic monomers, the reaction mixtures were heated for 3 hours consecutively at 60°, 80°, 120° and 140°C. In the case of polymerization with vinylic monomers, the reaction mixtures were heated for 3 hours consecutively at 60°, 80°, and 90°C. For copolymers prepared in sealed ampoules, the weight loss during aging at 300°C was determined. Specific impact viscosity, specific strength at static bending, and Brinell hardness for copolymers prepared in open dishes in air were determined. Solubility in chloroform, diallylphthalate, methylmethacrylate, and 2-allylphenol were determined for all copolymers. Of all synthesized copolymers, those based on diallylphthalate and diallylisophthalate were found to have superior thermomechanical properties. Orig. art. has: 3 figures, 2 tables.

SUB CODE: 07/

SUBM DATE: 04Jun65/

ORIG REF: 006

awm

Card 2/2

L 1809-66 ENT(m)/EPF(c)/ENP(v)/EMP(j)/T RPL RM/WW

ACCESSION NR: AP5025026

UR/0286/65/000/016/0082/0082

678.673.7-13

677 521

AUTHOR: Korshak, V. V.; Vinogradova, S. V.; Korchevey, M.; Kul'chitskiy, V. I.

TITLE: Preparative method for copolymers of unsaturated allyl-substituted polyaryls esters. Class 39, No. 173936

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 82

TOPIC TAGS: polyaryl ester, heat resistant polymer, cross linking

ABSTRACT: An Author Certificate has been issued for a preparative method for copolymers of unsaturated allyl-substituted polyaryl esters. The method involves copolymerization of the appropriate polyaryl esters with cross-linking agents at elevated temperature in the presence of free radical initiators. To improve the heat and chemical resistance of the copolymers, the cross-linking agents used are tetrafunctional acrylic monomers, e.g., allyl methacrylate, 2-allylphenol methacrylate, or 4, 4'-isopropylidene diphenol methacrylate. The copolymers so prepared are suitable as binders in glass-reinforced plastics.

[SM]

Cerd 1/2

L 1809-66

ACCESSION NR: AP5025026

ASSOCIATION: none

SUBMITTED: 23Nov64

ENCL: 00

SUB CODE: 06, MT

NO REF SOV: 000

OTHER: 000

ATD PRESS: 411

Card 2/2

L 18415-66 EWT(m)/EWP(j)/I/ETC(m)-6 WW/RM
ACC NR: AP6003421 (A)

SOURCE CODE: UR/0190/66/008/001/0109/0114

AUTHORS: Korshak, V. V.; Vinogradova, S. V.; Korchevey, M. G.; Kul'chitskiy, V. I.

ORG: Institute of Elementoorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR); Moscow Institute of Chemical Engineering im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut)

TITLE: Copolymers of allyl-substituted unsaturated polyarylates with vinyl and allyl monomers (81st Report in Series "On Heteroaliphatic Polyesters")

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 1, 1966, 109-114

TOPIC TAGS: polyaryl plastic, copolymerization, thermal stability, tensile strength, methyl methacrylate

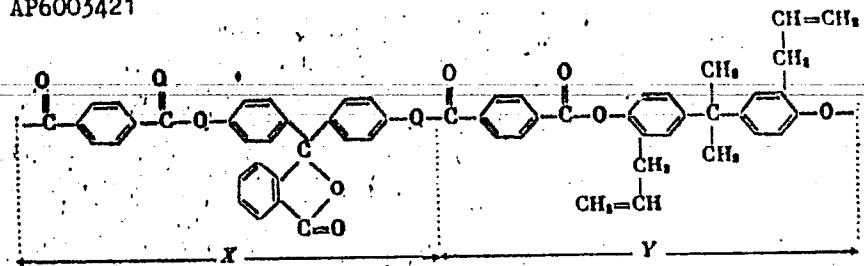
ABSTRACT: Allyl-substituted polyarylates (I) of different molecular weights and concentrations of allyl groups copolymerized with various vinyl and allyl monomers were investigated. The solubility, thermal stability, and tensile strength of the products were studied. Most suitable of the examined (I) were those derived from terephthalic chloroanhydride, phenolphthalein, diallyldian, and 2-allylphenol, the structure of which may be represented by the formula:

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UDC: 66.095.26+678.674 2

L 18415-66

ACC NR: AP6003421



with ratio of X:Y = 1.19 or 4. Their synthesis was described in an earlier work by V. V. Korshak, S. V. Vinogradova, M. G. Korchevey, and L. I. Komarova (Vysokomolek. soyed., 7, 457, 1965). It was established that methyl methacrylate, allyl methacrylate, dimethacrylate of ethylene glycol, and 2-allylphenol methacrylate are satisfactory cross-linking agents for (I). The last two compounds yield products of very high thermal stability and tensile strength, even after treatment at 300C in the presence of air. They are also inert to solvents and to sulfuric acid. Orig. art. has: 5 tables, 1 figure, and 1 structure.

SUB CODE: 07/ SUBM DATE: 18Feb65/ ORIG REF: 006/ OTH REF: 001

Card 2/2 *pa*

KUL'CHITSKIY, V.S.; ORLOV, G.N.; CHERNOIVANNIK, A.Ya.; ISKOVA, A.K.,
redaktor; SUDAK, D.M., tekhnicheskiy redaktor

[A catalog of commercial and technical equipment] Spravochnik-
katalog trgovogo i tekhnologicheskogo oborudovaniia. Izd. 2-o.
Moskva, Gos. izd-vo trgovoi lit-ry, 1954. 139 p. (MLRA 8:4)
(Food industry--Equipment and supplies)
(Retail trade--Equipment and supplies)

AKULOV, Leonid Sergeyevich; VOLONOV, Georgiy Davydovich;
KUL'CHITSKIY, Vadim Stepanovich

[Commercial technical equipment; a handbook] Torgovo-
tekhnologicheskoe oborudovanie; spravochnik. Moskva,
Ekonomika, 1964. 279 p. (MIRA 18:1)

	CARD NO.	SERIAL	AUTHOR	TITLE	PUBLICATION DATE	ISSUE	VOLUME	PAGE	PRICE	NOTES
KUCHECHITSKIY, V. Ye.	B	7								
PROCESSING AND PROPERTIES INDEX										
Portable Apparatus for Applying Hard-Alloy Tips to Cutting Tools. (In Russian.) V. E. Kuchitskovo. Promyshlennaya Energetika (Industrial Power), v. 8, Aug. 1949, p. 8-9. Special feature of the apparatus described is the addition of a damping resistance which permits changing the thickness of the built-up layer within wide limits. Circuit is diagrammed.										
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION										
RECORDS DIVISION										

KUL'CHITSKIY, Ya.O.; CHERNYAK, N.I.

Some observations on diapirism within the limits of the Carpathian
piedmont frontal fault. Geol.sbor.[Lvov] no.2/3:95-103 '56.

(MLRA 10:3)

1. Ukrainskiy vseseyuznyy nauchno-issledovatel'skiy geolgo-razvedochayy
neftyanoy institut L'vov.

(Carpathian Mountain region—Folds (Geology))

KUL'CHITSKIY, Ya.O.; KHLOPONIN, K.L.

Age of the Yanna sandstones (Western Carpathians). Geol. nefi 1
no.9:31-35 S '57. (MLRA 10:9)

1. Ukrainskiy Vsesoyuznyy nauchno-issledovatel'skiy geologo-
razvedochnyy neftyanoy institut.
(Carpathian Mountains--Sandstone)

KUL'CHITSKIY, Ya.O.

Paleogene sediments in the Yasinya region. Geol. sbor. [Lvov]
no.4:47-54 '57. (MIRA 13:2)

1.Ukrainskoye otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo
geologorazvedochnogo neftyanogo instituta, L'vov.
(Carpathian Mountain region--Geology, Stratigraphic)

AUTHOR: KUL' SHITEKIY, Ya.O., PETRASHKEVICH, A.I., KHLOPOTIN, R.I. 20-2-47/62
 TITLE: The Stratigraphy of the Eocene of the 'Klippen' Zone of the East Carpathians.
 (K stratigrafii eotsena utesovoy zony Vostochnykh Karpat - Russian)
 PERIODICAL: Doklady Akad.Nauk SSSR, 1957, Vol 115, Nr 2, pp 365-367 (U.S.S.R.)
 ABSTRACT: In spite of a great number of investigations, the conceptions of the geological structure of the 'Klippen' zone are by no means complete. This concerns the study of the stratigraphy of Cretaceous and Paleogene sediments which envelop the denuded cliffs of the Jurassic and were given the name of "cliff cover" by Austro-Hungarian geologists already in the last century. In recent years the interest in the stratigraphic problems of these sediments considerably increased in connection with an increase in the number of geological papers on the discovery of useful rocks. The Carboniferous is here represented by not very thick terrigenous deposits of limestone. They often have no rhythm proper to flysh. Frequent interruption of sedimentation is characteristic. They consist of Alb-Senomanous rocks and Pukhov marl of the Senone period discordantly covering them. The latter only occur in the region of the Klippen zone. The Paleogenic is composed of a thick stratum of sandy-clayish flysh rocks. They discordantly lie on Cretaceous as well as on Triassic-Jurassic deposits or even directly on old crystalline rocks (village of Kobyletskaya Polyana) of the Marmarosh massif. The lower part of the Paleogenic is represented by thick-layer, more seldom by massive sandstones. They were either included in the Upper-Cretaceous Paleocene or set apart as a "L'yutach"

Card 1/3

The Stratigraphy of the Eocene of the "Kippen" zone of the East Carpathians.

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suite. Its age was never faunally founded. According to Maslakov the-
se sandstones lie on the Puhkov suite of the Kampen and Maastricht
period. Everywhere above them are deposited colored rocks with fora-
minifera of from Lower to Upper Eocene. According to the authors' in-
vestigations, Paleocene deposits are absent in the region of the Ute-
sov zone, due to an interruption in sedimentation. The Paleogene is he-
re represented by Middle and Upper Eocene rocks (sandy-clayish flysch).
The beginning of their formation coincides with a great transgression
of the sea in the Middle Eocene epoch. The initial stadium is charact-
erized by a 500-600 m thick stratum of sand which, according to its
outward lithological appearance, was mistaken for the Ligutsh suite.
The denudations are restricted to the southern part of the Kippen zone
and can well be traced in a series of cross sectional areas. They con-
sist of alternating deposits of thick-layer and massive sandstones
with thin intermediate layers of aleuroliths or argillites. The cla-
stic material is extremely ill-sorted. Quartz plays an important part.
The cement on the whole is of a covering-swelling type predominant-
ly of carbonate composition. In the gray and bluish-gray aleuroliths
seldom occur semi-porous clayish units with charred plant fossils. In
the lower part numerous bio- and mechanoglyphic as well as Paleodictyon
signs are distinguishable. A great number of larger foraminifera was
found. The Middle Eocene age is confirmed by finds of a fauna of lar-

Card 2/3

The Stratigraphy of the Eocene of the "Klippen" Zone of
the East Carpathians.

20-2.47/62

ge foraminifery on the river Luzhanda. The Eocene deposits of the
"Klipper" zone widely differ from those of the Magura and Krosno zones.
According to lithology and the foraminifera complex they are very
close to Middle and Upper Eocene rocks of the West Carpathians (Pie-
nins and Tatra). The absence of the Danish stage ("dat") of the
Paleocene and Lower Eocene in the Klippen zone of the Carpathian and the
Tatra Mountains fully confirms the supposition that this portion was
firm land for a long time. In the Luthetic epoch a great transgres-
sion began in the south which caused the formation of Middle and
Upper Eocene deposits.
(4 Slavic references).

ASSOCIATION: Ukrainskoye otdeleniye Vsesoyuznogo nauchno - issledovatel'skogo
geologorazvedochnogo neftyanogo instituta, Feb. 6, 1957

PRESENTED By STRAKHOV N.M., Member of the Academy, April 16, 1956

SUBMITTED

AVAILABLE

Library of Congress

Card 3/3

KUL'CHITSKIY, Ya.O. [Kul'chyts'kyi, IA.O.]; ZHILOVSKIY, N.I. [Zhylovs'kyi, M.I.];
DABAGYAN, N.V. [Dabahian, N.V.]; MAKSIMOV, A.V. [Maksimov, O.V.];
KHLOPONIN, K.L.

Stratigraphy of Paleocene and Eocene eastern Carpathian Mountains [with
summary in English]. Dop. AN URSS no.3:310-314 '58. (MIRA 11:5)

I. Ukrains'kiy viddil Vsesoyuznogo naukovo-doslidnogo geologo-
rozvidual'nogo naftovogo institutu. Predstavleno akademikom AN
USSR O.S. Vyalovym.

(Carpathian Mountains--Geology, Stratigraphic)

SOV-21-58-4-13/29

AUTHORS: Vul'chin, Ye.I. and Kul'chitskiy, Ya.O.

TITLE: New Findings of Volcanic Tuffs in the Cretaceous and Tertiary Sediments of the East Carpathians (Novyye nakhodki tufov v melovykh i tretichnykh otlozheniyakh Vostochnykh Karpat)

PERIODICAL: Dopovidi Akademii nauk Ukrain's'koi RSR, 1958, Nr 4, pp 411-413 (USSR)

ABSTRACT: During previous years, thin intercalated beds of volcanic tuffs were discovered in flysh and molasses sediments of the East Carpathians, which may prove to be marker layers. Such layers have been found among the Upper Cretaceous sediments in the Magura zone, in the Eocene variegated flysh of the inner Carpathians and Transcarpathian inner depression, and in the Lower Tortonian sediments of the Forecarpathian marginal depression. The author cites the results of the chemical analysis of volcanic tuffs performed by Analyst Yu.V. Shevchenko, their characteristics given by O.N. Zavaritskiy, and lists representatives of the fossil

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SOV-21-58-4-13/29
New Findings of Volcanic Tuffs in the Cretaceous and Tertiary Sediments
of the East Carpathians

fauna identified by L.S. Pishvanova in argillites. There is 1 table and 10 references, 5 of which are Soviet, 1 Rumanian, 2 Polish, 1 German and 1 Hungarian.

ASSOCIATION: Ukrainskoye otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo geologorazvedochnogo instituta nefi (Ukrainian Department of the All-Union Scientific Research and Geological-Prospecting Petroleum Institute)

PRESENTED: By Member of the AS UkrSSR, V.G. Bondarchuk

SUBMITTED: July 8, 1957

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

1. Volcanic dust--USSR
2. Geological time--Determination
3. Geology--USSR

Card 2/2

KUL'CHITSKIY, Ya.O.

Division of the eastern Carpathians into tectonic sections.
Geol. sbor. [Lvov] no.5/6:64-74 '58. (MIRA 12:10)

1. Ukrainskoye otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo
geologo-razvedochnogo neftyanogo instituta, L'vov.
(Carpathian Mountains--Folds (Geology))

KUL'CHITSKIY, Ya.O.; KADANER, Ye.I.

Stratigraphy of Cretaceous and Paleogene deposits in the south-
eastern part of the Maramures-Pennine facies zone. Trudy VNIGNI no.12:
45-60 '58. (MIRA 12:3)
(Carpathian Mountains--Geology, Stratigraphic)

KUL'CHITSKIY, Ya. O., Candidate of Geolog-Mineralog Sci (diss) -- "Cretaceous and Paleogenic flysh of the southeastern part of the Eastern Carpathians". L'vov, 1959. 16 pp (Min Higher Educ Ukr SSR, L'vov State U im Ivan Franko), 150 copies (KL, No 21, 1959, 113)

VUL'CHIN, Ye.I.; KUL'CHITSKIY, Ya.O.

New finds and basic characteristics of pyroclastic formations in
Cretaceous and Tertiary sediments of the eastern Carpathians. Trudy
UkrNIGRI no.1:97-107 '59. (MIRA 12:12)
(Carpathian Mountains--Volcanic ash, tuff, etc.)

VYALOV, O.S. (SSSR); GLUSHKO, V.V. (SSSR); KUL'CHITSKIY, Ya.O. (SSSR);
SLAVIN, V.I. (SSSR)

Stratigraphy of the Eastern Soviet Carpathians. Mat.Karp.-Balk.
assots. no.3:5-26 '60. (MIRA 14:12)
(Carpathian Mountains—Geology, Stratigraphic)

KUL'CHITSKIY, Ya.O. [Kul'chyts'kyi, IA.O.]; MAKSIMOV, A.V.
[Maksymov, O.V.]

Stratigraphy of the Cretaceous deposits of the Chornohora
Ridge in the Carpatho-Ukraine. Dop. AN URSR no.8:1066-1068
'61. (MIRA 14:9)

1. Ukrainskiy nauch-issledovatel'skiy geologorazvedochnyy
institut. Predstavleno akademikom AN USSR V.B. Porfir'yevym
[Porfir'yev, V.B.]
(Cherno Gory Mountains—Geology, Stratigraphic)

KUL'CHITSKIY, Ya.O. [Kul'chyts'kyi, IA.O.]; MAKSIMOV, O.V. [Maksymov, O.V.];
KHLOPONIN, K.L.

Problem of the Lower Oligocene as revealed by the Eastern Carpathians.
Geol.zhur. 22 no.1:59-65 '62. (MIRA 15:2)

1. Ukrainskiy nauchno-issledovatel'skiy gornorudnyy institut, L'vov.
(Carpathian Mountains--Paleontology, Stratigraphic)

VYALOV, O.S., akademik; DABAGYAN, N.V.; KUL'CHITSKIY, Ya.O.

Recent data on the age of the Shipot and Dusino series in the Eastern Carpathians. Dokl. AN SSSR 142 no.4:896-899 F '62.
(MIRA 15:2)

1. Institut geologii poleznykh iskopayemykh AN USSR i Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut. 2. AN USSR (for Vyalov).
(Chernogora Range region—Geology, Stratigraphic)
(Svalyava Region—Geology, Stratigraphic)

KUL'CHITSKIY, Ya.O.; MAKSEMOV, A.V.

Stratigraphic pattern of the Cretaceous of the Ukrainian Carpathians. Dokl. AN SSSR 146 no.1:175-178 S '62. (MIRA 15:9)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut. Predstavleno akademikom A.L. Yanshinym.
(Transcarpathia—Geology, Stratigraphic)

KULICHITSKIY, Ya. O.

Time and the conditions governing the formation of the oil and
gas pools in the Eastern Carpathians. Trudy inzhin. no. 18:30-90
'63. (MIRA 18:3)

VYALOV, O.S., akademik; DANYSH, V.V.; KOTSYUBINSKIY, S.P. [Kotsiubyns'kyi, S.P.]; KUL'CHITSKIY, Ya.O. [Kul'chyts'kyi, IA.O.]; LOZINYAK, P.Yu. [Lozyniak, P.IU.]

Cretaceous deposits of the western part of the eastern Carpathians. Dop. AN URSR no.8:1081-1084 '63. (MIRA 16:10)

1. Institut geologii goryuchikh iskopayemykh AN UkrSSR, Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut i Nauchno-prirodovedcheskiy muzey AN UkrSSR. 2. AN UkrSSR (for Vyalov).
(Carpathian Mountains—Geology, Stratigraphic)

KUL'CHITSKIY, Ya.O. [Kul'chyts'kyi, IA.O.]; TEMNYUK, F.P.

Paleogene sediments of the Krosnen and Kuklyan zones in the Uzh
and Latoritsa interfluve. Dop. AN URSR no.5:628-631 '64.

(MIRA 17:6)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy institut.
Predstavleno akademikom AN UkrSSR V.B.Porfir'yevym [Porfyr'iev, V.B.].

DABAGYAN, N.V., [Dabagian, N.V.]; KUL'CHITSKIY, Ya.O. [Kul'chyt's'kyi, IA.O.];
LOZYNYAK, P.Yu. (Lozyniak, P.YU.)

Cretaceous sediments in the Krosno zone of the Ukrainian
Carpathians in the Gorgan region. Dop. AN URSSR no.1:87-90
'65. (MIRA 18:2)

1. Ukrainskiy nauchno-issledovatel'skiy geologorazvedochnyy
institut. Predstavleno akademikom AN UkrSSR O.S. Vyalovym.

15.8121

41167
S/153/62/005/004/005/006
E075/E436

AUTHORS: Yakovlev, A.D., Kul'chnitskayte, Ye.I.

TITLE: On curing of soft epoxy resin films with carboxyl-containing methacrylic copolymer

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, v.5, no.4, 1962, 642-646

TEXT: The curing of soft epoxy resins ЭД-6 (ED-6) and Э-40 (E-40) with the aid of n-butylmethacrylate-methacrylic acid (7%) copolymer was investigated. The optimum curing was obtained for 50 to 70% content of the copolymer in the epoxy resin films. The content of three dimensional polymer in the mixed films and their resistance to swelling increased with temperature of the curing process. The components in the mixed films are shown to form a common structural pair, in which epoxy groups react with the carboxylic groups, similarly to the reaction of epoxy groups with low molecular weight acids. The latter reaction, however, proceeds more readily and begins at 100°C, whereas the copolymer begins to react at 150°C. Thus the copolymer-containing films are of relatively low reactivity. In comparison with low
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On curing of soft epoxy resins ...

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E075/E436

molecular weight acids, such as phthalic anhydride, the amount of the copolymer needed for curing is 7 to 8 times less in terms of molar quantities. It was found that the mixed films have sufficiently good anti-corrosive properties. There are 5 figures and 1 table. ✓

ASSOCIATION: Kafedra tekhnologii lakov i krasok, Leningradskiy
tekhnologicheskii institut im. Lensovet
(Department of Varnish and Paint Technology
Leningrad Technological Institute imeni Lensovet)

SUBMITTED: February 13, 1961

Card 2/2

27004

S/103/61/022/004/011/014
B116/B212

16.9500 (1031, 1068, 1121, 1132)

AUTHOR: Kul'chiy, A. S. (Leningrad)

TITLE: Determination of the optimum transfer function during white noise of a servo-system from its quality and response time

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 4, 1961, 524-529

TEXT: Based on the results of K. I. Kurakin (Ref. 3: "Analiticheskiy metod sinteza lineynykh sistem avtomaticheskogo upravleniya pri nalichii pomekh i zadannoy dinamicheskoy tochnosti". (Analytic method of the synthesis of linear automatic control systems in the presence of interferences and with a given dynamic accuracy) Avtomatika i telemekhanika, v. 19, no. 5, 1958) the connection between the coefficients C_1 of the systematic error and the response time T is determined by applying the least root mean square error. C_1 and T are considered to be given. Formulas are derived for the optimum transfer function during white noise. In one case, the first two error coefficients are taken into account, and the other, the first three error coefficients. For a stable system having the smallest phase for a closed and open state, the following inequalities have to be satisfied by

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Determination of ...

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B116/B212

$$\begin{aligned} C_1 \text{ and } C_2: \quad & C_1 > 0 & (5) \\ & C_1 < T/2 & (6) \\ & C_2 < T^2/5 - TC_1 & (7) \\ & C_2 > -TC_1 & (8) \end{aligned}$$

The permissible values of C_2 as a function of C_1 may be found graphically (Fig. 1) with the aid of (5)-(8) if T is given. In order to determine whether the most favorable C_2 value has been selected with respect to the root mean square error, it will be assumed that C_2 and C_3 will have only a small influence on the systematic error. These are determined such that the least root mean square error is guaranteed. The following expressions have been derived for the case limited to the first two error coefficients:

$$\bar{\eta}_s^2 = \frac{2}{T} \left(\frac{3C_1^2}{T^2} - \frac{3C_1}{T} + 1 \right), \quad (14)$$

$$\Phi_{\text{out}}^*(p) = \frac{\frac{T^2}{60} p^2 + \frac{1}{2} (T - 2C_1) p + 1}{\frac{T^2}{120} p^2 + \frac{T^2}{10} p^2 + \frac{T}{2} p + 1}, \quad (15)$$

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$$W_{\text{opt}}^*(p) = \frac{1}{C_1 p} \frac{\frac{T^3}{60} p^3 + \frac{1}{2} (T - 2C_1) p + 1}{\frac{T^3}{120C_1} p^3 + \frac{T^3}{12C_1} p + 1} \quad (16)$$

(16), and

for the case where the first three coefficients C_1 , C_2 , and C_3 of the systematic error have to be taken into account:

$$\eta_{\text{st}} = \frac{196}{89T} \left(\frac{3C_1^2}{T^2} - \frac{3C_1}{T} + 1 \right) \quad (19)$$

(19)

$$\Phi_{\text{opt}}^{**}(p) = \frac{\frac{T^3}{280} (T - 2C_1) p^3 + \frac{T^3}{42} p^2 + \frac{1}{2} (T - 2C_1) p + 1}{\frac{T^3}{1680} p^4 + \frac{T^3}{84} p^3 + \frac{3T^3}{28} p^2 + \frac{T}{2} p + 1} \quad (20)$$

(20)

$$W_{\text{opt}}^{**}(p) = \frac{1}{C_1 p} \frac{6TC_1 - 12C_1^2}{T^3} \frac{\left[\frac{T^3}{140} p^3 + \frac{T^3}{21} (T - 2C_1) p + 1 \right]}{\left[\frac{T^3}{140} p^3 + \left(\frac{T}{10} + \frac{6C_1}{70} \right) p + 1 \right]} \times$$

$$\times \frac{1 + \left\{ \frac{1}{2} p (T - 2C_1) \left[\frac{T^3}{140} p^3 + \frac{T^3}{21} (T - 2C_1) p + 1 \right] \right\}^{-1}}{1 + \left\{ \frac{T^3}{12C_1} p \left[\frac{T^3}{140} p^3 + \left(\frac{T}{10} + \frac{6C_1}{70} \right) p + 1 \right] \right\}^{-1}} \quad (22)$$

(22)

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Determination of ...

where $\overline{\eta}_*^2$ denotes the relative root mean square error; $\Phi_{\text{ONT}}^*(p)$ the optimum transfer function of the servo-system in a closed state, and $W_{\text{ONT}}^*(p)$ that of the servo-system in an open state. The diagram shown in Fig. 2 has been constructed by using (13) and (14). The full lines represent $C_2 = f(C_1)$ curves and the dashed ones the $\overline{\eta}_*^2 = f(C_1)$ curves at certain values of T given in seconds. It is pointed out that the formulas obtained are well suited to calculate control systems. There are 4 figures and 4 Soviet-bloc references.

SUBMITTED: July 24, 1960

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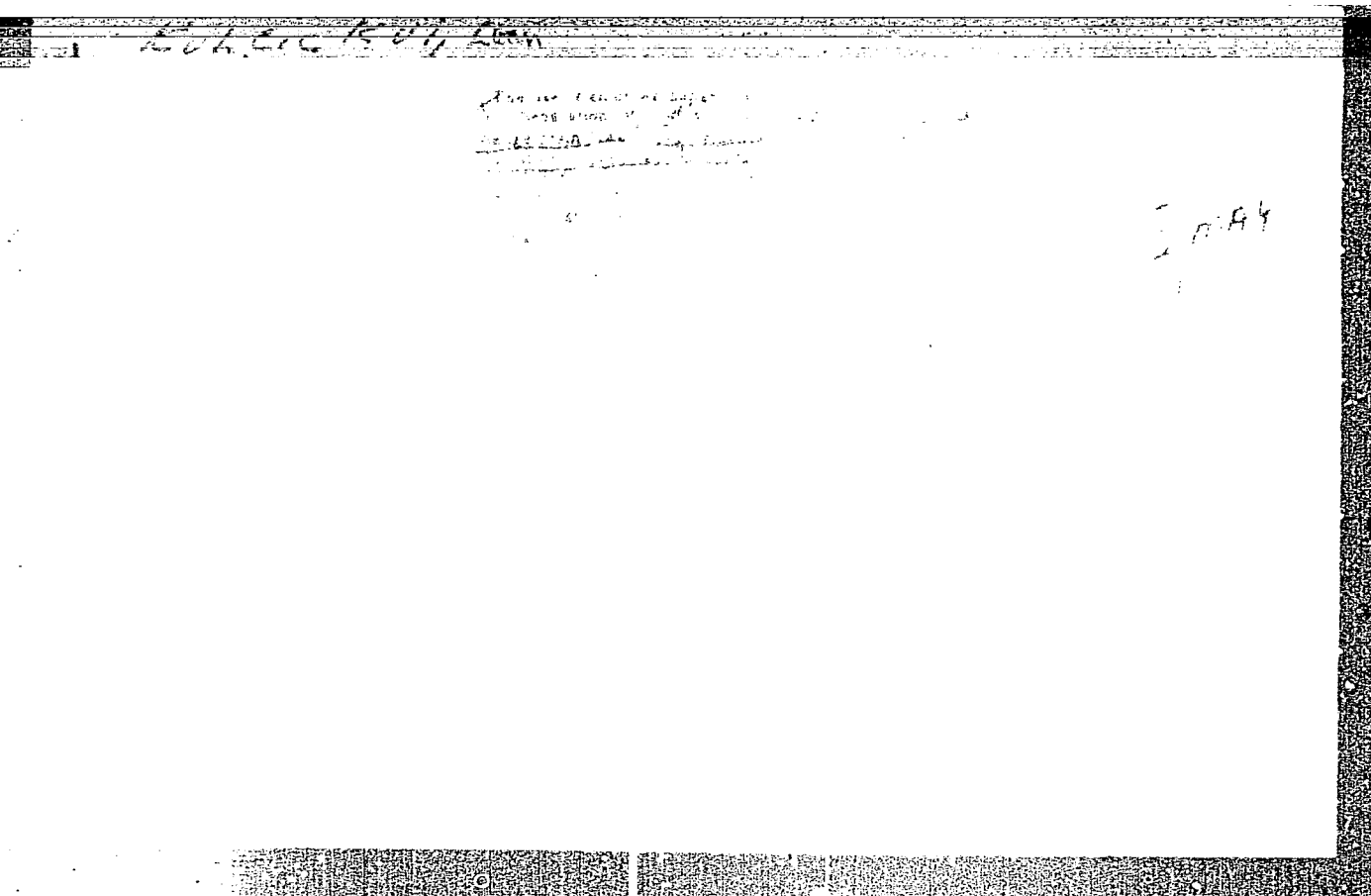
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